

Amendments to the Claims

Claim 1. (currently amended): A sintered porous composite material comprising:

a porous base material; and

and a layer of porous sintered nanoparticle material, said layer of porous sintered nanoparticle material on one or more surfaces of the porous base and penetrating a portion of said porous base material, said porous sintered nanoparticle material having pores with a smallest aspect of less than about 200 nanometers. ~~smaller than the pores in said porous base material.~~

Claim 2. (currently amended): The sintered porous composite material of claim 1, wherein said sintered nanoparticle material is selected from the group consisting of metals, metal alloys, and mixtures of these materials. ~~comprised of metals, metal alloys, and mixtures of these materials.~~

Claim 3. (original): The sintered porous composite material of claim 1 wherein said porous sintered nanoparticle material includes nickel.

Claim 4. (original): The sintered porous composition of claim 1 wherein said porous sintered nanoparticle material includes sintered dendritic nanoparticles.

Claim 5. (original): The sintered porous composite material of claim 1 further comprising a gas, liquid, supercritical fluid or mixtures of these in the pores of said porous sintered nanoparticle material.

Claim 6. (currently amended): The sintered porous composite material of claim 1 further comprising: a housing wherein said sintered porous composite material is bonded to said housing, and wherein said housing with the bonded sintered porous composite material is characterized in that [[is]] it has a sieving LRV of at least 2 for 0.2 μm particles in a fluid.

Claim 7. (currently amended): A filter element comprising:

a porous base material and a layer of porous sintered nanoparticle material formed by sintering a powdered nanoparticle material layer penetrating a portion of said porous base, said layer of porous sintered nanoparticle material on one or more surfaces of the porous base, said porous sintered nanoparticle material having pores with a smallest aspect of less than about 200 nanometers. ~~smaller than the pores in said porous base.~~

Claim 8. (currently amended): The filter element of claim 7, wherein said sintered nanoparticle material is selected from the group consisting of metals, metal alloys, and mixtures of these materials. ~~comprised of metals, metal alloys, and mixtures of these materials.~~

Claim 9. (original): The filter element of claim 7 further comprising: a housing wherein said filter element is bonded to said housing, and wherein said housing with the bonded filter element is characterized in that it has a sieving LRV of at least 2 for 0.2 μm particles in a fluid.

Claim 10. (original): A sintered porous composite material comprising:

a porous sintered metal base material;

a layer of porous sintered nanoparticle material on one or more surfaces of a porous base and penetrating a portion thereof; and,

a porous sintered nanoparticle material within the base pores, forming a substantially continuous structure and having interconnected pores smaller than the pores in said porous base material.

Claim 11. (currently amended): The sintered porous composite material of claim 10, wherein said sintered nanoparticle material is selected from the group consisting of metals, metal alloys, and mixtures of these materials. ~~comprised of metals, metal alloys, and mixtures of these materials.~~

Claims 12-14 (canceled)

Claim 15. (original): A method for removing material from a fluid comprising: flowing a fluid having said material therein through the sintered porous composite material of claim 1 wherein the said sintered porous composite material removes said material from the fluid.

Claim 16. (original): The method of claim 15 wherein said material is removed by particle capture.

Claim 17. (original): The method of claim 15 wherein said fluid is a supercritical fluid.

Claim 18. (canceled)

Claim 19. (currently amended): An apparatus for removing contaminants from a fluid stream comprising:

a housing for containing a bed material;

a second filter element that is a sintered porous composite material of claim 1 ~~having nanometer-sized pores~~, said second filter element secured to said housing to permit fluid flow through the apparatus, the bed material, and said second filter element, said second filter element removing particles from said fluid stream; ~~[[a]]~~ said bed of material covering said second filter element and contained within said housing, said bed removing contaminants from said fluid stream; and

a first filter element secured to the housing that retains the bed material within the housing between the first filter element and the second filter element, said first filter element permitting fluid flow through the apparatus.

Claim 20. (canceled)

Claim 21. (currently amended): A sintered porous composite material comprising:

a porous base material;

and a layer of porous sintered nanoparticle material, said layer of porous sintered nanoparticle material on one or more surfaces of the porous base and penetrating a portion of said porous base material, said porous sintered nanoparticle material having pores smaller than the pores in said porous base material; said porous composite material is characterized in that it has an LRV of at least 2 for ~~[[a]]~~ 0.2 μm or larger particles in water.

Claim 22. (currently amended): The sintered porous composite material of claim 21 wherein said material is characterized in that it has an LRV of at least 4 for ~~[[a]]~~ 0.2 μm ~~particle challenge~~ particles in water.

Claim 23. (currently amended): The sintered porous composite material of claim 21 wherein said material is characterized in that it has an LRV of at least 2 for ~~[[a]]~~ 0.05 μm ~~particle challenge~~ particles in water.

Claim 24. (currently amended): The sintered porous composite material of claim 21 wherein said material is characterized in that it has an LRV of at least 4 for ~~[[a]]~~ 0.05 μm ~~particle challenge~~ particles in water.

Claim 25. (original): The sintered porous composite material of claim 21 having a pressure coefficient in nitrogen of less than 250.

Claim 26. (original): The sintered composite material of claim 21 able to support a differential pressure across the material of greater than 60 psi.

Claim 27. (original): The sintered composite material of claim 21 wherein the thickness of the porous sintered nanoparticle material is less than 100 microns.

Claim 28. (original): The sintered composite material of claim 21 wherein the porous sintered nanoparticle material include particles less than 1000 nm.